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ABSTRACT

This study compared resilient adolescents to their non-resilient peers to assess the students' relative risk for engaging in behavioral, affective, somatic/health, and nutritional risks. Data was collected in the form of a self-administered Health Behaviors questionnaire from junior high school students (n=1,394) in grades 7-9, in two different schools. Results showed that the resilient subjects' behaviors and emotions differed significantly from those of their non-resilient peers. Further, the general pattern is such that it supports the conclusion that resilient adolescents engage in less psychosocially at-risk behaviors. At the same time; however, they are not as free from troublesome behavior and emotions as their normal peers. Two tables are included at the end of this document which provide comparisons and odds ratios of resilient subjects to non-resilient subjects. Contains 26 references. (SR)

Profile of Behaviorally Resilient Adolescents: Confirmation and Extension

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When compared to non-resilient peers, resilient adolescents are more socially (Luthar, 1991) and academically (Gordon, 1993, in press) competent. However, resilient adolescents do not always compare favorably with their low-risk, normal peers (Luthar, 1991); they exhibit more anxiety and depression. Resilience is defined as an ability to succeed, mature, and gain competence in a context of adverse circumstances or obstacles. Circumstances which place the individual adolescent at risk may be either acute or chronic and range in degree of adversity.

Resilient individuals are rated as more sensitive, sociable, and cooperative than their non-resilient peers; they also demonstrate inner control and cognitive superiority (Garmezy & Rutter, 1983; Luthar, 1991; Murphy & Moriarity, Werner & Smith, 1982; 1992; Winfield, 1991). Additionally, Garmezy and Rutter (1983) suggest that resilient individuals are more socially responsible and androgynous. That is, resilient females are

more adventurous and assertive while resilient males are more socially perceptive and emotionally responsive.

Resilience, however, is not solely an intrapersonal phenomenon. Environmental factors contribute to resilience. Quality of parenting and family expressivity (Bradley, Whiteside, Mundfrom, Casey, Kelleher, & Pope, 1994; Masten, Garmezy, Tellegen, Pellegrini, Larkin, & Larsen, 1988; Rutter, 1987), assignment of chores, and firm spirituality (Clark, 1983; Gordon, 1993) increase likelihood of resilience in the context of other aversive circumstances. Schools in which individuals are provided responsible roles, high academic standards are maintained, and opportunities for extra-curricular achievement are offered have a greater chance of fostering resilience (Gordon, 1993; Luehart & Zigler, 1991; Rutter, 1985; Rutter, Maughan, Mortimore, Ouston, 1979; & Werner, 1984). It is also important for schools to be integrated and conflict-free (Gandara, 1982; Rutter et. al., 1979; Winfield, 1991). Further, the degree to which parents are active with the schools contributes positively to resilience (Connell, Spencer, & Aber, 1994).

The present study is aimed at extending the study of resilience in the context of a non-clinical, school-based setting. Resilience in this context is defined statistically. That is, adolescents who, through regression analyses are predicted to engage in delinquent, high risk behaviors will be divided into those who meet and do not meet a criterion of risk. Propensity to engage in selected high risk behaviors and to display emotional risk among resilient adolescents will be compared to their non-resilient and normal, not at risk peers. Resilient adolescents are expected to engage in reduced behavioral risk activities relative to their non resilient peers but increased risk relative to their normal, not at risk peers.

The present study also attempts to address the following questions: Do resilient adolescents differ from their non-resilient peers on other health risk behaviors? How do they compare to their normal, low risk peers on these same health risk behaviors? Are resilient adolescents really more depressed and anxious than their low risk, normal peers?

The objectives of the present study are three-fold. First this study examines the behavior of a statistically determined, resilient sample and compares it to peer non-resilient and normal samples. Second, this study seeks to confirm findings of earlier studies of resilience using a statistically determined group. Third, this study extends resilience research to include a number of previously unanalyzed health risk behaviors.

METHODS

Data from a self-reported health behavior survey collected in two junior high schools (grades 7 to 9) were used in this study. Students were informed that participation was optional and that all information was confidential. Parents were notified by mail that the survey was to be conducted; they and/or the students could refuse to participate or to answer any question at any time. Written, parental consent was waived with the approval of the university's Institutional Review Board and the school administration. The combined sample included usable responses from 1394 students (721 boys and 673 girls) of a total enrollment of 1750 students. The sample had a mean age of 13.39 years (SD = 0.96 years) and was predominantly composed of White students (83.4 percent White, 16.6 percent Black and other).

Students responded to a self-administered Health Behaviors Questionnaire (HBQ; Ingersoll & Orr, 1989) in all mathematics classes (a

mandatory subject) on one day of school. The HBQ consists of a set of items asking respondents to indicate whether they had engaged in specific health endangering behaviors or had experienced selected emotions. Students responded on a four-point ordinal scale (1 = never; 4 = about once a week) to statements about multiple risk areas. Example items included: "I use alcohol (beer, wine, booze)", "I use pot," "I have had sexual intercourse/gone all the way." Some statements such as "I have attempted suicide" and "I have been arrested/picked up by the police" requested a Yes or No response. Health behavior items addressed frequency of alcohol and drug use, sexual activity, delinquent behavior, quality of relationships with others, and management of emotions. Students also completed the Rosenberg Self-Esteem Inventory (Rosenberg, 1965).

In an earlier study (Ingersoll & Orr, 1989), factor analysis of the items yielded a Behavioral Risk [**BR**] and an Emotional Risk [**ER**] factor which were transformed to standardized scores (M=50; s=10). Assessment of the reliability of the HBQ using a Cronbach alpha (Nunnally, 1977) resulted in a coefficient of 0.84 for a Behavioral Risk scale and 0.81 for an Emotional Risk scale. **BR** and **ER** scores for respondents in this analysis were computed using the original factor loadings.

Identification of Resilient Adolescents

Multiple linear regression with Behavioral Risk [**BR**] scores as an outcome variable was utilized to establish a statistically significant [$R = .42$, $p < .001$] regression equation in which Age, Family structure (Living in a Single Parent Family [SINGPAR], Living in a Step Parent Family

[STEPPAR]), Gender [1=Male, 2=Female], and Emotional Risk [ER] served as independent variables. The resultant regression equation was:

BR'= 2.193 *[AGE] + 2.508*[SINGPAR] + 1.537*[STEPPAR] - 2.597*[GENDER] + .265*[ER] + 7.373

Estimated Behavioral Risk [**BR'**] scores were computed and using the expected standardized mean (50) as a cut-off point, subjects with BR' < 50 were identified as predicted low risk while subjects with BR' > 50 were identified as predicted high risk. In the same fashion, subjects were identified as actual low or high BR samples using the established standardized BR mean. High and low BR and BR' status were then combined and subjects assigned into a 2x2 contingency table. Group HH [high BR' and High BR] are those who, on the basis of the array of independent variables are predicted to be at high risk and engage in elevated levels of risky behavior; these subjects are non-resilient. Group HL [High BR' and Low BR] are those who are predicted to be at high risk but do not engage in elevated levels of risky behavior; these subjects are resilient. Group LL [Low BR' and Low BR] are those who are predicted to be at low risk and do not engage in elevated levels of risky behavior. The final quadrant, Group LH [Low BR' and High BR] are those who are predicted to be at low risk and engage in elevated levels of risky behavior [n = 60]. The primary comparison groups for Group HL are Group HH and Group LL.

In addition to the behavioral and emotional risk items, the questionnaire included items related to somatic issues, nutritional behavior, and other health related issues.

For the purpose of clarifying further the correspondence of resilience and risk, individual items were subsequently recoded to permit assessment of

relative risk. Individual behavioral, affective, and health risk measures were subsequently recoded as Never or infrequent (values 1 and 2) or Frequent (values 3, or 4).

RESULTS

Assessment of relative risk for engaging in behavioral, affective, somatic/health, and nutritional risks for non-resilient at-risk (Group HH) and resilient (Group HL) adolescents are presented as Table 1. Assessment of relative risk for resilient (Group HL) adolescents and normal, not at-risk (Group LL) peers are presented as Table 2. The magnitude of association for each risk with frequency of somatic complaint is reflected in both the chi-square statistic and the phi coefficient.

Insert Tables 1 and 2 about here

Relative incidence of a risk behavior for Group HL to Group HH and to Group LL are reflected in the odds ratios (Brown, 1985). Odds ratios indicate the relative likelihood of individuals in a targeted group engaging in a specific behavior as compared to individuals not in the targeted group. A ratio of 1.00 hypothetically reflects no difference in expected frequency. The odds ratio for the item "Plan to drop out of school" can be interpreted to indicate that subjects in Group HH are 21.9 times as likely to plan to drop out as subjects in Group HL. Odds ratios in Table 1 range from a low .61 for "Eats breads" to a high 123.7 for "Drink Alcohol." Odds Ratios less than 1.00 with corresponding significant Chi Square statistics may be interpreted to indicate that Group HL (Resilient) subjects are more apt to engage in the behavior than Group HH (Non-Resilient) subjects.

Table 2 presents data comparing relative occurrence of risk conditions for at-risk, resilient subjects (Group HL) to the normal, not at-risk (Group LL) subjects. The odds ratio for the item "Feel Lonely" can be interpreted lo indicate that subjects in Group HL are 26.92 times as likely to report frequent feelings of loneliness as subjects in Group LL. Odds ratios in Table 2 range from a low .63 for "Eats fruits" and "Uses pot" to a high 26.92 for "Feels lonely." Odds Ratios less than 1.00 with corresponding significant Chi Square statistics may be interpreted to indicate that Group HL (Resilient) subjects are less apt to engage in the behavior than Group LL (Normal) subjects. Odds ratios were not calculable for "Uses other drugs" or "Tried to hurt self" since the matrices contained empty cells.

Self Esteem. Subjects' Rosenberg self esteem scores were subjected to a 2x2 analysis of variance with low versus high actual BR scores and low versus high predicted BR' scores as independent variables. Analysis yielded significant differences for both BR ($F_{[1,1319]} = 8.105$, $p < .01$] and BR' ($F_{[1,1319]} = 7.094$, p .01] with no interaction ($F_{[1,1319]} < 1.0$]. Pairwise comparisons indicate that the resilient subjects had lower mean esteem than high risk subjects ($t = 2.594$, $p < .01$) but higher mean self esteem than normal subjects ($t = 5.018$, $p < .01$)

DISCUSSION

Results showed that the resilient subjects' behaviors and emotions differed significantly from those of their non-resilient peers. Further, the general pattern is such that it supports the conclusion that resilient adolescents engage in less psychosocially at risk behaviors. At the same time; however, they are not as free from troublesome behavior and emotions as their normal peers.

Behavioral Competence

Resilient adolescents participated in fewer risky behaviors than their non resilient peers. They were less likely to have had sex, been suspended from school, or driven with an intoxicated driver than their non-resilient peers. However, resilient subjects were more likely to participate in those same behaviors than the normal, low-risk subjects. While resilient subjects were behaviorally more at-risk than normal peers, they compared favorably with their normal peers on three behavioral items: They were no more likely to plan to drop out of school, run away, or be arrested.

On a positive note, resilient subjects were considerably less likely to participate in risky, substance use behaviors than the non-resilient subjects, but when compared to their normal peers, did not participate in them any more regularly. The resilient subjects were also more likely to eat nutritious foods such as fruits, breads, meats, and milk than their non resilient peers. Resilient subjects demonstrate improved behavioral competence; they are less likely to participate in self-injurious behaviors.

Emotional Competence

In a similar vein, frequency of emotional risks were not as high for resilient subjects as their non-resilient peers. Yet, resilient subjects were at a higher emotional risk than their normal peers. This was observed across a host of emotional risk variables including feeling tense, feeling nervous, thinking about hurting one's self, and attempting suicide. These data conform to the Luthar (1991) finding that the resilient adolescents have some troublesome emotions. Current data from this study related to self-esteem bolster this conclusion. The data suggests that the self-esteem of the resilient subjects is higher than the non-resilient peers yet lower than the low risk

peers. This, however, can be enhanced. It is possible to do this by giving them praise for worthy accomplishments and verbal reinforcement of their own abilities.

Social Competence

Moreover, in the social sphere they were not any more likely to make friends than the non-resilient subjects, but were not as likely to make friends as the normal, low risk subjects. They have some trouble in the social arena. This readdresses the issue of social skills. Are social skills necessarily related to the resilience phenomena? If the answer is yes, then exactly how are they related?

Interpretation

How is one to interpret these findings? Behaviorally, it seems the resilient subjects were at a lowered level of risk. Emotionally and socially, however, they retained considerable risk. These findings raise two issues: Does elevated emotional and social risk endanger their resiliency status? and Why do they remain more at emotional and social risk?

The emotional and social risk may endanger the resiliency status of the adolescent if one defines resilience as resistance to psychopathology and the manifestation of social competence. However, resiliency may be seen as the manifestation of behavioral competence in the face of adverse circumstances. In that case, emotional and social risk become obstacles to overcome. That is, as long as the adolescents demonstrate a level of behavioral competence they are resilient.

The social and emotional risk of the resilient adolescent may arise from a number of sources. The fact that the resilient subjects in this sample reported that they had trouble making friends suggests a complicated

interaction between their behaviors and their environment. Socially, resilient adolescents may be inadvertently demonstrating behaviors which alienate associates. Social success can be influenced by others' actions as well as one's own behaviors (Winfield, 1991). Additionally, resilient ethnic minority adolescents' burden of bi-culturality (Winfield, 1991) may cause them to seem odd or eccentric (Gordon, in press). Therefore, social skills and sociability may be more important of a resilience indicator for ethnic majority than ethnic minority adolescents.

Emotionally, the adolescent may be responding to the stress and adverse circumstances in their lives. Their life circumstances may cause them to feel more depressed and anxious (Luthar, 1991) as well as lonely, sad, and nervous, affecting their self-esteem. Removing stress from their lives might enhance their emotional resilience (Rutter, 1987 and Winfield, 1991) providing emotional and social support (Werner & Smith, 1992) may as well.

Defining Resilience

A further comment about the statistical definition of resilience is in order. In most studies resilience has been defined prior to data being gathered. Definitions typically involve identification of a deprived or aversive environment paired with manifestation of competence. In contrast, resilience in this study was defined through the utilization of a multiple linear regression equation. Subjects who manifested low risk, even though they were predicted to have high risk were considered resilient. Such an approach is not without hazard. Those individuals who are classified in any of the quadrants are subject to all the problems of measurement error. Then again any classification scheme is subject to that risk. On the other hand, the data

were collected in the absence of pre-determined and potentially contaminating classification.

Results of this study confirm previous findings. However, the proportions of high risk, resilient, and low risk students were different from traditional studies of resilient youth. Typically, one third of the general population is at risk and one third of the at risk population is resilient. In other words, ten percent of the general population is resilient(Werner & Smith, 1992). In this study, approximately half of the population was at risk (793 out of 1394) and two thirds of the at risk population was resilient (522). In other words, thirty seven percent of the population is resilient, but fifty percent of the population is at risk. This may be the result of the characteristics of the sample, perhaps this sample contains several at-risk subjects, or the use of the standardized mean (50) as the cut-off point.

CONCLUSION

The results show that although the resilient subjects were adjusting better than their non-resilient counterparts, they did not always compare favorably to their normal counterparts. This was especially true in the emotional and social areas. The resilient subjects are in a precarious situation. This supports a few earlier findings (Luthar, 1991). It seems that the resilient subjects' environment could be doing more to assist them. This is also congruent with a few earlier findings (Gordon, 1994 and Winfield, 1991). The reason the resilient subjects have trouble making friends can be attributed to their environment as well as internal characteristics (Winfield, 1991). All things considered, the accomplishments of the resilient subjects should not be considered minuscule.

Table 1

Comparisons and Odds Ratios of Non-Resilient, At-Risk Subjects to Resilient Subject

	X^2	Φ	OR	Signif
Risky Behaviors:				
Plans to drop out from school	92.09	.34	21.90	***
Ridden with driver "under influence"	78.21	.31	5.36	***
Had sex	175.77	.47	8.39	***
Run away	61.67	.28	13.49	***
Been suspended from school	93.48	.34	4.82	***
Been Arrested	113.37	.38	6.30	***
Substance Use:				
Alcohol	103.22	.36	123.71	***
Cigarettes	236.30	.55	33.52	***
Marijuana (pot)	77.22	.31	90.22	***
Other drugs	36.37	.21	22.97	***
Caffeine	18.76	.15	1.93	***
Self-Injurious Behaviors:				
Have tried to hurt self	28.76	.19	4.69	***
Attempted suicide	91.03	.34	6.40	***
Emotional States:				
Feel lonely	3.84	.07	1.47	*
Feel sad	6.41	.09	1.59	*
Feel tense	14.23	.13	1.94	***
Feel upset	5.25	.08	1.47	*
Feel nervous	9.11	.11	1.66	**

Somatic Issues:				
Sleep difficulties	21.72	.17	2.14	***
Stomach aches	27.07	.18	2.95	***
Headaches	16.80	.15	2.00	***
Exercise frequently	0.09	.01	0.95	ns
Energy	0.14	.01	0.94	ns
Feel underweight	5.15	.08	1.69	*
Feel overweight	0.01	.00	1.02	ns
Use laxatives for weight control	10.92	.15	2.91	***
Diet to control weight	1.24	.04	1.24	ns
Social Risk:				
Difficulty making friends	0.40	.02	1.96	ns
Nutrition Behaviors:				
Eat fruits	3.93	.07	0.74	*
Eat breads	8.47	.10	0.61	**
Drink milk	4.59	.08	0.70	*
Eat meat	3.92	.07	0.73	*

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

Table 2

Comparisons and Odds Ratios of Resilient Subject to Normal, Not At-Risk Subjects

	X^2	Φ	OR	Signif
Risky Behaviors:				
Plans to drop out from school	1.76	.04	3.80	ns
Ridden with driver "under influence"	7.93	.10	2.48	**
Had sex	23.85	.17	2.89	***
Run away	0.02	.17	1.10	ns
Been suspended from school	20.45	.15	3.08	***
Been arrested	0.63	.03	1.00	ns
Substance Use:				
Alcohol	0.11	.01	0.63	ns
Cigarettes	0.00	.00	0.98	ns
Marijuana (pot)	0.11	.01	0.63	ns
Other drugs	1.26	.04		ns
Caffeine	1.75	.05	1.21	ns
Self-Injurious Behaviors:				
Have tried to hurt self	10.25	.11		**
Attempted suicide	16.39	.14	6.54	***
Emotional States:				
Feel lonely	45.54	.23	26.92	***
Feel sad	51.04	.24	16.42	***
Feel tense	35.19	.20	5.49	***
Feel upset	73.15	.29	19.07	***
Feel nervous	56.98	.26	9.57	***

Somatic Issues:				
Sleep difficulties	29.96	.19	3.46	***
Stomach aches	11.62	.12	3.33	***
Headaches	19.56	.15	2.68	***
Exercise frequently	0.30	.02	0.92	ns
Energy	3.87	.07	0.75	*
Feel underweight	2.18	.05	0.71	ns
Feel overweight	2.39	.05	1.38	ns
Use laxatives for weight control	4.38	.07	2.41	*
Diet for weight control	0.34	.02	1.12	ns
Social Risk:				
Difficulty making friends	31.02	.19	18.81	***
Nutrition Behaviors:				
Eat fruits	10.14	.11	0.63	**
Eat breads	1.10	.04	0.83	ns
Drink milk	0.12	.01	0.95	ns
Eat meat	0.01	.00	0.99	ns

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

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